



SEQUENCE LISTING

<110> Advisys
Baylor College of Medicine

<120> SYNTHETIC MUSCLE PROMOTERS WITH ACTIVITIES EXCEEDING NATURALLY OCCURRING
REGULATORY SEQUENCES IN CARDIAC CELLS

<130> 108328.00161 - AVSI-0027

<140> 10699597
<141> 2003-10-30

<150> US 60/423,536
<151> 2002-11-04

<160> 22

<170> PatentIn version 3.1

<210> 1
<211> 21
<212> DNA
<213> artificial sequence

<220>
<223> SRE control elements used in the promoters.

<400> 1
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21

<210> 2
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<213> artificial sequence

<220>
<223> MEF-1 control element used in the promoters

<400> 2
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19

<210> 3
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<212> DNA
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<220>
<223> MEF-2 control element used in the promoters.

<400> 3
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19

<210> 4
<211> 13
<212> DNA
<213> artificial sequence

<220>
<223> TEF-1 control element used in the promoters.

<400> 4
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<210> 5
<211> 335
<212> DNA
<213> artificial sequence

<220>
<223> Nucleic acid sequence of an eukaryotic promoter c5-12.

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<210> 6
<211> 40
<212> PRT
<213> artificial sequence

<220>
<223> This is the artificial sequence for GHRH (1-40)OH.

<220>
<221> MISC_FEATURE
<222> (1)..(1)
<223> Xaa at position 1 may be tyrosine, or histidine

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> Xaa at position 2 may be alanine, valine, or isoleucine.

<220>
<221> MISC_FEATURE
<222> (15)..(15)
<223> Xaa at position 15 may be alanine, valine, or isoleucine.

<220>
<221> MISC_FEATURE
<222> (27)..(27)
<223> Xaa at position 27 may be methionine, or leucine.

<220>
<221> MISC_FEATURE
<222> (28)..(28)
<223> Xaa at position 28 may be serine or asparagine.

<400> 6

Xaa Xaa Asp Ala Ile Phe Thr Asn Ser Tyr Arg Lys Val Leu Xaa Gln
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Leu Ser Ala Arg Lys Leu Leu Gln Asp Ile Xaa Xaa Arg Gln Gln Gly
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Glu Arg Asn Gln Glu Gln Gly Ala
35 40

<210> 7
<211> 3534
<212> DNA
<213> artificial sequence

<220>
<223> Nucleic acid sequence for the HV-GHRH plasmid.

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<210> 8
 <211> 3534
 <212> DNA
 <213> artificial sequence

<220>
 <223> Nucleic acid sequence for the TI-GHRH plasmid.

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<210> 9
 <211> 3534
 <212> DNA
 <213> artificial sequence

<220>
 <223> Nucleic acid sequence for the TV-GHRH plasmid.

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<210> 10
 <211> 3534
 <212> DNA
 <213> artificial sequence

<220>
 <223> Nucleic acid sequence for the 15/27/28 GHRH plasmid.

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actgttggga	agggcgatcg	gtgcgggc	cttcgc	tatt	acgccc	agctg	3480
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<210> 11
<211> 2710
<212> DNA
<213> artificial sequence

<220>

<223> Vector with a mouse codon optimized GHRH analog sequence

<400> 11
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cggcaccatc ctcacgacac ccaaataatgg cgacgggtga ggaatggtgg ggagttat 120
ttagagcggt gaggaaggtg ggcaggcagc aggtgttggc gctctaaaaa taactcccg 180
gagttat 1tt tagagcggtg gaatggtggc cacccaaata tggcgcacgg tccctcacc 240
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cccgcggcc tcgataaaaag gctccggggc cggcggcggc ccacgagcta cccggaggag 360
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cagacggaaa acagctgcat cagagcaacc aatggtctgc tgtgcccagt cataacccaa	2460
cagacgttca acccaggctg ccggagaacc tgcacatcaga ccattctgtt caatcatgcg	2520
aaacgatcct catcctgtct cttgatcaga tcttgatccc ctgcgccatc agatccttgg	2580
cggcaagaaa gccatccagt ttactttgca gggcttccca accttaccag agggcgcccc	2640
agctggcaat tccggttcgc ttgctgtcca taaaaccgcc cagtctagca actgttggga	2700
agggcgatcg	2710

<210> 12
 <211> 2713
 <212> DNA
 <213> artificial sequence

<220>
 <223> Vector with a rat codon optimized GHRH analog sequence

<400> 12	
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cggcaccatc ctcacgacac ccaaataatgg cgacgggtga ggaatggtgg ggagttat	120
ttagagcggt gaggaagggtg ggcaggcagc aggtgttggc gctctaaaaa taactccgg	180
gagttattt tagagcggag gaatggtgga cacccaaata tggcgacggt tcctcaccgg	240
tgcccatatt tgggtgtccg ccctcgcccg gggccgcatt cctgggggccc gggcggtgct	300
cccgcccccc tcgataaaaag gctccggggc cggcggcgcc ccacgagcta cccggaggag	360
cgggaggcgc caagcggatc ccaaggccca actccccgaa ccactcaggg tcctgtggac	420
agctcaccta gctgccatgg ccctgtgggt gttcttcgtg ctgctgaccc tgaccagcgg	480

aactgcagca cacggaacac cagtggttgc cagccaagac agacgagctg cttcatcctg 2340
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tggccggcaag aaagccatcc agtttacttt gcagggcttc ccaaccttac cagagggcgc 2640
cccagctggc aattccggtt cgcttgctgt ccataaaacc gcccagtcta gcaactgttg 2700
ggaagggcga tcg 2713

<210> 13
<211> 2704
<212> DNA
<213> artificial sequence

<220>
<223> Vector with a bovine codon optimized GHRH analog sequence

<400> 13
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cggcaccatc ctcacgacac ccaaataatgg cgacgggtga ggaatggtgg ggagttat 120
tttagagcggt gaggaagggtg ggcaggcagc aggtgttggc gctctaaaaa taactccgg 180
gagttat 240
tttagagcggt gaggaagggtg ggcaggcagc aggtgttggc gctctaaaaa taactccgg 180
gagttat 240
tagagcggt gaggaagggtg ggcaggcagc aggtgttggc gctctaaaaa taactccgg 180
tcgcccattt tgggtgtccg ccctcgcccg gggccgcatt cctgggggcc gggcggtgct 300
cccgcccgcc tcgataaaaag gctccggggc cggcggcggc ccacgagcta cccggaggag 360
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agctcaccta gctgccatgg tgctgtgggt gttcttcctg gtgaccctga ccctgagcag 480
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cttcaccaac agctaccgca aggtgctcgg ccagctcagc gcccgcgaagc tcctgcagga 600
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cagcagccac tggtaacagg attagcagag cgaggtatgt aggcgggtgct acagagttct 1500
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gaaagccatc cagtttactt tgcagggctt cccaaacctta ccagagggcg ccccgactgg 2640
caattccggc tgccttgcgt tccataaaac cggccagttc agcaactgtt gggaaaggcg 2700
atcg 2704

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<210> 14
<211> 2704
<212> DNA
<213> artificial sequence

<220>
<223> Vector with a ovine codon optimized GHRH analog sequence

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cggcaccatc ctcacgacac ccaaataatgg cgacgggtga ggaatggtgg ggagttat 120
ttagagcggt gaggaaggtg ggcaggcagc aggtgttggc gctctaaaaa taactccgg 180
gagttat 240
tagagcggtg gaatggtggc cacccaaata tggcgacggt tcctcaccgg 240
tcgcccattt tgggtgtccg ccctcgcccg gggccgcatt cctgggggccc gggcggtgct 300
cccgcccccc tcgataaaaag gctccggggc cggcggcggc ccacgagcta cccggaggag 360
cgggaggcgc caagcggatc ccaaggccca actccccgaa ccactcaggg tcctgtggac 420
agctcaccta gctgccatgg tgctgtgggt gttcttcctg gtgaccctga ccctgagcag 480
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tgaagtggtg gcctaaactac ggctacacta gaagaacagt atttgggtatc tgccacttc 1560

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tgaaggccagt taccttcgga aaaagagttg gtagctcttg atccggcaaa caaaccaccg	1620
ctggtagccgg tggttttttt gtttgcagaagc agcagattac gcgcagaaaa aaaggatctc	1680
aagaagatcc tttgatcttt tctacggggc tagcgcttag aagaactcat ccagcagacg	1740
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atcg	2704

```
<210> 15
<211> 2713
<212> DNA
<213> artificial sequence
```

<220>
<223> Vector with a chicken codon optimized GHRH analog sequence

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<400> 15
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cggtggccatc ctcacgacac ccaaataatgg cgacgggtga ggaatggtgg ggagttatTTT 120
tttagagcggt gaggaaggtg ggcaggcagc aggtgttggc gctctaaaaa taactcccg 180
gagttatTTT tagagcggtgaaatggtgg cacccaaata tggcgacggt tcctcacccg 240
tcgccccatatt tgggtgtccg ccctcggcccg gggccgcatt cctggggggcc gggccgggtqct 300
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cccgccccgc tcgataaaaag gctccggggc cggcggcggc ccacgagcta cccggaggag 360
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agctcaccta gctgccatgg ccctgtgggt gttcttgtg ctgctgaccc tgacctccgg 480
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cctgatggcc aagcgcgtgg gcagcggact gggagacgag gccgagcccc tgagctgata 660
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aaacagacgt tcaacccagg ctgccggaga acctgcatgc agaccatcct gttcaatcat 2520
gcgaaacgat cctcatcctg tctcttgatc agatcttgat cccctgcgcc atcagatcct 2580
tggcggcaag aaagccatcc agtttacttt gcagggcttc ccaaccttac cagagggcgc 2640
cccagctggc aattccggtt cgcttgctgt ccataaaacc gcccagtcta gcaactgtt 2700
ggaagggcga tcg 2713

<210> 16
<211> 382
<212> DNA
<213> artificial sequence

<220>
<223> This is the synthetic promoter c1-26.

<400> 16
ggcggccgag ggcggcgggg cagggcagcag gtgtggcac cattcctcac cgctctaaaa 60
ataactcccg tgaggaatgg tgccgtcgcc atattgggt gtcgacaccc aaatatggcg 120
acgggtgagg aatggtgggc aggcagcagg tggggaca cccaaatatg ggcacggcca 180
acacccgtcg cctgccggga gttatttta gagcggggag ttattttag agcggtgagg 240
aatggtggac acccaaata ggcgacggcc gggccgcatt cctgggggc cggccgggtgc 300
tccccccgcg ctcgataaaa ggctccgggg cggcggcgg cccacgagct acccggagga 360
gcgggaggcg ccaagctcta ga 382

<210> 17
<211> 218
<212> DNA
<213> artificial sequence

<220>
<223> This is the synthetic promoter sequence for c2-26.

<400> 17
cggccgtcgc catatgggg tgtccgtct aaaaataact cccgacaccc aaatatggcg 60
acggggcagg cagcaggtgt tggacaccc aaatatggcg acggccgggg ccgcattcct 120

ggggggccggg cggtgctccc gcccgcctcg ataaaaggct ccggggccgg cggcggccca	180
cgagctaccc ggaggagcgg gaggcgccaa gctctaga	218
<210> 18	
<211> 230	
<212> DNA	
<213> artificial sequence	
<220>	
<223> This is the synthetic sequence for c2-27.	
<400> 18	
cgcccgtcgc catatttggg tgtcggcagg cagcaggtgt tggcaccatt cctcaccgt	60
cgcacatattt gggtgtcggc aggcagcagt gttggacac ccaaataatgg cgacggccgg	120
ggccgcattc ctgggggccg ggcggtgctc ccgcggcct cgataaaagg ctccggggcc	180
ggcggcggcc cacgagctac ccggaggagc gggaggcgcc aagctctaga	230
<210> 19	
<211> 231	
<212> DNA	
<213> artificial sequence	
<220>	
<223> This is the synthetic promoter for c5-5.	
<400> 19	
cggccgtccg ccctcgggac acccaaataat ggcgacgggt gaggaatggt gcaccattcc	60
tcacgggagt tattttaga gcggtgagga atggtgaca cccaaataatg ggcacggccg	120
ggccgcatt cctgggggccc gggcggtgct cccgcggcc tcgataaaag gctccggggcc	180
cggcggcggc ccacgagcta cccggaggag cgggaggcgcc caagctctag a	231
<210> 20	
<211> 255	
<212> DNA	
<213> artificial sequence	
<220>	
<223> This is the synthetic promoter for c6-5.	
<400> 20	
cggccgtcgc catatttggg tgtcccaaca cctgctgcct gccccgtcgc catatttggt	60
gtcggcaggc agcaggtgtt ggccaacacc tgctgcctgc cgggagttat ttttagagcg	120
gacacccaaa tatggcgacg gcccggccg cattcctggg ggccggccgg tgctccgc	180
cgcctcgata aaaggctccg gggccggccgg cggcccacga gctacccgga ggagcgggag	240
gcgcacaagct ctaga	255

<210> 21
<211> 283
<212> DNA
<213> artificial sequence

<220>
<223> This is the synthetic promoter for c6-16.

<400> 21
cggccgtcgc catatttggg tgtccgctct aaaaataact cccccaacac ctgctgcctg 60
ccccgtcgcc atatttgggt gtcggcagggc agcaggtgtt ggccaacacacc tgctgcctgc 120
cccaacacacct gctgcctgcc ccgtcgccat atttgggtgtc cgcgcctcgcc cggggccgca 180
ttcctggggg ccgggcggtg ctcccgccccg cctcgataaaa aggctccggg gccggcggcg 240
gcccacgagc taccgggaggc agcgggagggc gccaagctct aga 283

<210> 22
<211> 263
<212> DNA
<213> artificial sequence

<220>
<223> This is the synthetic promoter for c6-39.

<400> 22
cggccgtccg ccctcggggg agttatttt agagcgccaa cacctgctgc ctgccccgtc 60
ccatatatttgc ggtgtcggca ggcagcaggt gttggggag ttattttag agcgccgtcg 120
ccatatatttgc gtgtcccgag ggcggacggc cggggccgca ttcctggggg ccgggcggtg 180
ctcccgccccg cctcgataaaa aggctccggg gccggcggcg gcccacgagc taccggagg 240
agcgggagggc gccaagctct aga 263